



Category: Miscellaneous

Effect of Lead acetate on oxidative stress and antioxidant defence system of *Bacillus subtilis* and plasmid (pBSIISK) isolated from DH5 α

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Abstract

Environmental contamination by heavy metals has been one of the major concerns for ecological and public health. Although some heavy metals are required for metabolic processes, but their excessive accumulation in living organisms is always detrimental. High concentration of lead affects all living organisms including soil flora, fauna and microorganisms. Presence of such heavy metals in environment could certainly cause the decrease in the community diversity. This study was aimed to investigate the effect of lead acetate on growth and antioxidant defence system of *Bacillus subtilis* in dose (0, 0.125, 0.25 and 0.5 mM) and time (6, 12, and 24 h) dependent manner, and also assess its deleterious effects on plasmid-pBSIISK isolated from DH5 α strain. The results indicate that the cell number was declined significantly with increase in concentration of the heavy metal at different time of their growth phase. Lipid peroxidation (LPx) and reduced glutathione (GSH) levels were significantly enhanced in response to lead acetate, whereas the activities of antioxidant enzymes, superoxide dismutase (SOD) and catalase (CAT) were decreased in presence of lead acetate. Glutathione S-transferase (GST) activity was increased at 6 h and 12 h, but decreased at 24 h in response to lead acetate. *In vitro* study indicates that lead acetate potentially damage the plasmid (pBSIISK) isolated from DH5 α strain.

References

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